ABSTRACT

The 1995 Nationwide Personal Transportation Survey (NPTS) and 1995 American Travel Survey (ATS) provide rich sources of data on travel in the United States. While the survey objectives differ, each provides a good foundation for further research into many different topics. The purpose of this paper is to identify regional variations in long distance travel in the United States as reported in the 1995 NPTS and the 1995 ATS. Specifically, the paper will seek to answer the question "How does long distance travel differ when we consider reports from respondents in geographically diverse regions of the United States, such as New York and Oklahoma?" This will be accomplished through comparisons of national and state level data collected through both studies.

Comparisons of reported long distance trips in each data set for pre-defined geographic regions will be performed in order to identify differences in trip length, purpose, mode, and demographic characteristics of the travelers. By focusing the analysis at the state level for geographically diverse areas, a comparison of results will show where regional variations in long distance travel exist.

In addition to comparing the data across geographic regions within each data set, this investigation will also, by default, look at differences reported in long distance travel between the two data sets at the national level. Given the differences in methods used to collect the data, some variations in long distance travel are expected. By using both data sets in this analysis, it is expected that any reporting shortfalls in one data set will be compensated by coverage in the other data set. The result expected from including both data sets in the analysis is a comprehensive picture of regional variations in long distance travel.

INTRODUCTION

The 1995 Nationwide Personal Travel Survey (NPTS) and 1995 American Travel Survey (ATS) provide rich sources of data on travel in the United States. The purpose of this paper is to identify regional variations in long distance travel in the United States as reported in the 1995 NPTS and the 1995 ATS. Specifically, the paper will seek to answer the question "How does long distance travel differ when we consider reports from respondents in geographically diverse regions of the United States, such as New York and Oklahoma?" This will be accomplished through the following objectives:

- To compare and identify differences in long distance national travel as reported in both data sets to determine the extent to which methodological differences will affect the regional analysis; and
- To compare and identify differences in long distance regional travel as reported in both data sets to determine where regional variations exist.

This paper draws from the data contained in the travel period file of the 1995 Nationwide Personal Transportation Survey (NPTS) and the person trip file of the 1995 American Travel Survey (ATS). In order to understand the comparisons drawn between the data sets, a short description of each data set and their inherent differences is necessary.

1995 NPTS

The NPTS is a comprehensive source of travel behavior and transportation patterns in the United States at both the household and person level, for typical daily travel as well as longer distance periodic travel. It is widely used by transportation planners and others as inputs to the transportation planning process as well as to better understand trends in travel patterns. The Research Triangle Institute conducted the survey from May 1995 through June 1996.

The data set consists of six files: household data, person data, vehicle data, travel day data, trip segment data, and travel period data. The travel period data file contains the data on long distance travel collected as part of the person interviews. It represents all one-way trips of at least 75 miles for all members of surveyed households (age 5 and older) that took place during a 14 day period ending on the assigned travel day and either originated or ended at home. The trip distances were calculated as a straight-line distance based on the household location and the reported trip destination.

The data represent a cross section of travel in the United States as reported by 42,033 households. Approximately half of these household are part of the national sample and the other half were supplemented with separate contracts to support planning efforts at higher geographic levels. Through this add-on process, state level data is available for respondents in Massachusetts, New York, and Oklahoma. The long distance travel reported by respondents in these states will comprise the "regional" units of analysis for this paper.

1995 ATS

The ATS represents a national measurement of interstate and intermetropolitan passenger travel by trip and travel characteristics for all modes and for intermodal combinations. The purpose of the survey was to provide accurate and comprehensive information on travel patterns across the United States to assist in the formulation and evaluation of intermodal travel initiatives. It is used by policy makers to obtain detailed information on differences in travel patterns by state.

The data set contains four main files: household demographics, person demographics, household travel, and person travel. This paper will rely on the person travel file, which contains data for all members of surveyed households (regardless of age) that completed a one-way trip of at least 100 miles during a specific 3-month period. The trip distances were calculated using the zip codes for the origin and destination and based on transportation network databases.

The ATS sample design allows for use of the data at the state level as well as the national level. It is a state-based design of approximately 80,000 households. The actual sample size for each state varies, but all meet prescribed reliability requirements. Data were collected in 3-month cycles from April 1995 through March 1996 using regional Census data collection centers.

Data Limitations

While both surveys independently provide a rich source of information about regional and national travel patterns, differences in methodology require exploration in order to understand limitations of comparing the results. The main differences between the data sets that will impact comparison of the results include the following:

- Definition of a long distance trip. NPTS respondents were asked to record all one-way trips of at least 75 miles as "long distance travel". The ATS defined long distance travel as all trips of at least 100 miles. **To minimize this methodological difference, only trips of 100 miles or longer in both data sets will be included in the analysis**.
- Calculation of trip distance. Travel distance in the NPTS was calculated as a straight line from the home location to the reported destination. The ATS, however, used transportation network databases to calculate distance. **In order to compare distance traveled, a factor of 1.22 was applied to the NPTS calculated distances**.
- Respondent Eligibility. The NPTS collects data from all members of the household age 5 and older, while the ATS collects data from all members regardless of age. **To allow for comparable trip rates, only ATS person trips for those respondents age 5 and older will be included in the analysis**.
- Regional Analysis Level. The NPTS provides state level data only for Massachusetts, New York, and Oklahoma, while the ATS provides state level data for all 50 states. In this paper, a**ll regional level analyses will be restricted to Massachusetts, New York, and Oklahoma.**
- Data collection "recall" period. The NPTS asked respondents to provide data for all long distance trips within a 14-day period, while the ATS asked for such trips over a 3-month period. While this difference cannot be compensated for in terms of a data adjustment (such as those listed above), it will explain some differences in reported trip rates.

COMPARISON OF DATA

The first step in the analysis is to compare the NPTS and ATS data at the state and national levels. Given the differences in methods used to collect the data, some variations in long distance travel are expected. By using both data sets in this analysis, it is expected that any reporting shortfalls in one data set will be compensated by coverage in the other data set. The result expected from including both data sets in the analysis is a comprehensive picture of regional variations in long distance travel.

As shown in Table 1, the data sets are fairly consistent in the reporting of trip lengths. Respondents from New York tended to make the longest trips, while Oklahoma respondents reported the shorted trip distances. New York and Massachusetts respondents both reported above average trip lengths as compared to the national average trip length.

Table 1
Average Person Trip Lengths, NPTS vs. ATS

Geographic Level	ATS	NPTS
National	515 miles	510 miles
Massachusetts	610 miles	525 miles
New York	705 miles	1099 miles
Oklahoma	392 miles	220 miles

Base: Includes all NPTS long distance trips at least 100 miles, where distance traveled is calculated distance times factor of 1.22 to allow comparison to ATS data. ATS calculations include all ATS long distance trips of at least 100 miles for all household members age 5 or older. All cases are weighted using the appropriate file weights.

LONG DISTANCE TRAVEL DISTANCE FACT:
Respondents from Massachusetts and New York reported above average trip lengths, while those from Oklahoma reported below average trip rates.

Oklahoma respondents also differ somewhat in reported trip purpose compared to respondents from the Northeast. As shown in Table 2, the most frequently reported specific trip purposes were visiting and work trips. The difference is in the third most frequent trip purpose: personal / family business for Oklahomans, vacation activities for Massachusetts respondents, and a tie of the two for New Yorkers.

Table 2
ATS Trip Purpose by Geographic Region

ATS Trip Purpose	Mass.	New York	Oklahoma	National
Work/work related	25.3%	24.1%	24.1%	24.4%
Shopping	1.0%	1.3%	1.3%	1.2%
School	3.1%	2.8%	2.4%	2.8%
Personal/Family Business	8.0%	10.8%	15.5%	11.0%
Vacation activities	12.9%	10.7%	9.5%	11.0%
Visit	29.2%	33.4%	36.7%	33.0%
Other Social/Recreation	2.9%	4.0%	4.3%	3.8%
Other	17.6%	12.9%	6.2%	12.8%
Total	100%	100%	100%	100%

Base: ATS calculations include all ATS long distance trips of at least 100 miles for all household members age 5 or older. All data are weighted.

The same distinction holds true for the NPTS respondents, with travel for work and visiting among the most frequently reported trip purposes. Oklahoma respondents clearly reported more trips for personal or family business than for respondents in Massachusetts and New York combined.

Table 3
NPTS Trip Purpose by Geographic Region

NPTS Trip Purpose	Mass.	New York	Oklahoma	National
Work/work related	21.8%	19.4%	20.4%	20.2%
Shopping	0.9%	2.1%	1.1%	1.6%
School	0.5%	0.6%	0.8%	0.6%
Personal/Family Business	10.0%	11.1%	40.9%	18.2%
Vacation activities	16.8%	10.8%	4.8%	10.6%
Visit	22.8%	26.7%	20.9%	24.5%
Other Social/Recreation	22.9%	25.6%	7.6%	20.6%
Other	4.3%	3.7%	3.3%	3.7%
Total	100%	100%	100%	100%

Base: Includes all NPTS long distance trips at least 100 miles, where distance traveled is calculated distance times factor of 1.22 to allow comparison to ATS data. All data are weighted.

LONG DISTANCE TRAVEL PURPOSE FACT:
Respondents from Oklahoma are more likely to travel for personal or family business than those from Massachusetts or New York. Work-related travel and travel for visiting were popular trip purposes throughout the nation.

Long distance travel modes were mainly personal auto and airplane across both data sets. Of significance is the higher dependence on automobile by respondents in Oklahoma as compared to respondents from New York or Massachusetts. As shown in Table 4, ATS respondents from Oklahoma were 20% more likely to travel by personal auto than respondents from the other states. New Yorkers were more likely to travel by bus as a tertiary mode choice than others.

Table 4
ATS Travel Mode by Geographic Region

ATS Travel Mode	Mass.	New York	Oklahoma	National
Car/Pickup/Van	63.9%	61.9%	80.4%	65.8%
Other Truck	0.4%	0.1%	1.2%	0.4%
Airplane	29.0%	29.7%	14.5%	26.8%
Bus	2.1%	3.3%	1.2%	2.6%
School Bus	0.1%	0.1%	0.4%	0.1%
Train	1.4%	2.4%	0.0%	1.8%
RV	0.6%	0.6%	0.7%	0.6%
Bicycle	0.0%			0.0%
Motorcycle/Moped	0.1%	0.1%	0.1%	0.1%
Other	2.4%	1.9%	1.5%	1.9%
Total	100%	100%	100%	100%

Base: ATS calculations include all ATS long distance trips of at least 100 miles for all household members age 5 or older. All data are weighted.

The NPTS data set shows the top three travel mode choices as auto, airplane, and bus. Oklahomans are more likely to take the auto or bus over the airplane as compared to respondents from New York or Massachusetts. As with the ATS data, a higher percentage of New Yorkers are more likely to take the bus as a tertiary mode than those from other states.

Table 5
NPTS Travel Modes by Geographic Region

NPTS Travel Mode	Mass.	New York	Oklahoma	National
Car/Pickup/Van	81.2%	74.2%	90.1%	79.5%
Other Truck	0.8%	2.9%	0.8%	2.0%
Airplane	12.7%	9.2%	2.9%	8.4%
Bus	2.6%	6.7%	4.8%	5.4%
School Bus	0.3%	0.1%	0.0%	0.1%
Train	1.6%	5.3%	0.0%	3.2%
RV	0.1%	0.2%	0.4%	0.2%
Bicycle			0.0%	0.0%
Motorcycle/Moped	0.3%	0.1%		0.1%
Other	0.4%	1.2%	0.8%	0.9%
Total	100%	100%	100%	100%

Base: Includes all NPTS long distance trips at least 100 miles, where distance traveled is calculated distance times factor of 1.22 to allow comparison to ATS data. All data are weighted.

LONG DISTANCE TRAVEL MODE FACT:
Respondents from Oklahoma are more likely to travel by auto than those from Massachusetts or New York. A higher percentage of New Yorkers consider long distance travel by bus to be a viable option than those from other states.

The most frequent long distance travelers came from households of 2 to 4 persons. This was consistent across the states for the ATS data set.

Table 6
ATS Household Size by Geographic Region

ATS Household Size	Mass.	New York	Oklahoma	National
1	12.6%	11.9%	10.3%	11.8%
2	33.3%	29.3%	35.9%	31.5%
3	16.7%	18.2%	18.4%	17.9%
4	23.1%	26.1%	22.2%	24.6%
5	8.7%	8.6%	8.3%	8.6%
6	3.9%	4.8%	2.2%	4.1%
7+	1.6%	1.2%	2.6%	1.5%
Total	100%	100%	100%	100%

Base: ATS calculations include all ATS long distance trips of at least 100 miles for all household members age 5 or older. All data are weighted.

The most frequent long distance travelers reflected in the NPTS data set are also in households of 2 to 4 persons. However, in this data set, half of all Oklahoma respondents report having 4 persons in the household.

Table 7
NPTS Household Size by Geographic Region

NPTS Household Size	Mass.	New York	Oklahoma	National
1	13.3%	12.0%	8.6%	11.4%
2	30.2%	31.2%	14.0%	26.8%
3	16.4%	18.2%	13.7%	16.7%
4	27.5%	24.2%	54.4%	32.2%
5	8.5%	9.9%	6.7%	8.8%
6	3.2%	3.1%	2.3%	2.9%
7+	0.9%	1.4%	0.3%	1.0%
Total	100%	100%	100%	100%

Base: Includes all NPTS long distance trips at least 100 miles, where distance traveled is calculated distance times factor of 1.22 to allow comparison to ATS data. All data are weighted.

LONG DISTANCE TRAVEL DEMOGRAPHIC FACT:
Long distance travelers tend to come from households of 2 to 4 persons. In the NPTS data set, half of all Oklahoma respondents are from 4-person households.

As shown in Table 8, Oklahoma travelers tend to be from the middle class, as compared to the high-income travelers from Massachusetts and New York. .

Table 8
ATS Household Income by Geographic Region

ATS Household Income	Mass.	New York	Oklahoma	National
Less than $10k	1.0%	1.2%	3.7%	1.6%
$10k to < $15k	0.6%	1.7%	5.0%	2.1%
$15k to < $25k	3.8%	7.5%	10.8%	7.3%
$25k to < $30k	2.8%	4.4%	5.3%	4.2%
$30k to < $40k	7.5%	7.7%	23.7%	10.8%
$40k to < $50k	9.9%	12.0%	19.2%	12.9%
$50k to < $60k	13.6%	13.4%	12.4%	13.2%
$60k to < $75k	25.1%	19.1%	8.2%	18.4%
$75k to < $100k	16.1%	18.3%	5.4%	15.2%
$100k +	19.6%	14.8%	6.3%	14.3%
Total	100%	100%	100%	100%

Base: ATS calculations include all ATS long distance trips of at least 100 miles for all household members age 5 or older. All data are weighted and income was imputed for households that did not provide a response.

The NPTS respondents from Oklahoma were also more middle class than those from Massachusetts or New York. However, the NPTS data set showed more variation across income groups than did the ATS data set. As shown in Table 9, nationally, one-third of all respondents earned between $30k and $50k, as compared to 23% in the ATS data set. This discrepancy may be a result of data imputation used in the ATS data set.

Table 9
NPTS Household Income by Geographic Region

NPTS Household Income	Mass.	New York	Oklahoma	National
Less than $10k	1.9%	4.5%	6.7%	4.6%
$10k to < $15k	2.7%	2.8%	3.1%	2.9%
$15k to < $25k	6.2%	12.5%	4.1%	9.0%
$25k to < $30k	6.1%	9.1%	4.1%	7.2%
$30k to < $40k	11.7%	13.4%	13.7%	13.2%
$40k to < $50k	13.9%	12.3%	51.2%	22.9%
$50k to < $60k	11.2%	9.5%	4.7%	8.6%
$60k to < $75k	9.4%	8.6%	3.4%	7.4%
$75k to < $100k	16.1%	14.2%	5.5%	12.3%
$100k +	20.8%	13.1%	3.6%	12.1%
Total	100%	100%	100%	100%

Base: Includes all NPTS long distance trips at least 100 miles, where distance traveled is calculated distance times factor of 1.22 to allow comparison to ATS data. Includes only NPTS households that reported income. All data are weighted.

LONG DISTANCE TRAVEL DEMOGRAPHIC FACT:
Long distance travelers from Oklahoma were in the middle income bracket, whiles those from New York and Massachusetts tended to reflect higher income levels. Nationally, there is a difference in reported income between ATS and NPTS respondents.

Almost 90% of all long distance travelers reported the race of the head of the household as white, non-Hispanic. As shown in Table 10, the third highest reported race for Massachusetts respondents were Asian, while New York and Oklahoma were more likely to have Hispanic travelers.

Table 10
ATS Household Race by Geographic Region

ATS Household Race	Mass.	New York	Oklahoma	National
Hispanic	1.8%	4.5%	3.1%	3.6%
White, non-Hispanic	92.7%	83.5%	89.7%	86.9%
Black, non-Hispanic	2.2%	7.1%	4.2%	5.4%
Asian, non-Hispanic	2.5%	4.2%	0.7%	3.1%
Other, non-Hispanic	0.7%	0.7%	2.4%	1.0%
Total	100%	100%	100%	100%

Base: ATS calculations include all ATS long distance trips of at least 100 miles for all household members age 5 or older. All data are weighted.

The NPTS data set shows a different distribution of respondent race, most notably in Oklahoma. In the ATS data, Oklahoma respondents are primarily white, with 7% Hispanic or black. In the NPTS data set, there is an almost equal split between white and black respondents, with marginal reporting of Hispanic respondents.

Table 11
NPTS Household Race by Geographic Region

NPTS Household Race	Mass.	New York	Oklahoma	National
Hispanic	1.4%	9.3%	0.9%	5.6%
White, non-Hispanic	90.6%	73.3%	52.5%	71.8%
Black, non-Hispanic	2.6%	11.4%	42.7%	17.2%
Asian, non-Hispanic	2.8%	2.0%	0.2%	1.7%
Other, non-Hispanic	2.6%	4.0%	3.7%	3.7%
Total	100%	100%	100%	100%

Base: Includes all NPTS long distance trips at least 100 miles, where distance traveled is calculated distance times factor of 1.22 to allow comparison to ATS data. All data are weighted.

LONG DISTANCE TRAVEL DEMOGRAPHIC FACT:
Most long distance travelers are white, non-Hispanic. Massachusetts reports having more Asian travelers, while New York has more Hispanic travelers. The NPTS and ATS data sets differ in the reported races of Oklahoma respondents.

The final demographic variable considered is worker / non-worker status. In the ATS data set, Oklahoma differs from New York or Massachusetts in that the percentage of workers making long distance trips is below the national average while its non-worker percentage is above the national average.

Table 12
ATS Worker Status by Geographic Region

ATS Worker Status	Mass.	New York	Oklahoma	National
Worker	68.9%	66.3%	60.3%	65.8%
Non-Worker	31.1%	33.7%	39.7%	34.2%
Total	100%	100%	100%	100%

Base: ATS calculations include all ATS long distance trips of at least 100 miles for all household members age 5 or older. All data are weighted.

This distinction is even more apparent in the NPTS data set. As shown in Table 13, the distribution of worker / non-worker is reversed for Oklahoma as compared to the other states and the national averages.

Table 13
NPTS Worker Status by Geographic Region

NPTS Worker Status	Mass.	New York	Oklahoma	National
Worker	73.8%	68.1%	40.7%	62.6%
Non-Worker	26.2%	31.9%	59.3%	37.4%
Total	100%	100%	100%	100%

Base: Includes all NPTS long distance trips at least 100 miles, where distance traveled is calculated distance times factor of 1.22 to allow comparison to ATS data. All data are weighted.

LONG DISTANCE TRAVEL DEMOGRAPHIC FACT:
Oklahoma travelers are more likely to be non-workers.

CONCLUSIONS

The analysis of ATS and NPTS data set in light of long distance trips reveals that long distance travelers from Oklahoma differ significantly from those in New York or Massachusetts. Long distance travelers from New York and Massachusetts were very similar in terms of travel statistics and demographic composition. Some major differences exist between the data sets in terms of income distribution. In addition, household race distributions in Oklahoma were very different. Specific results include:

- The NPTS and ATS data sets differ in terms of income distribution, overall, and household race specifically for families in Oklahoma. This may be attributable to the imputation techniques employed in the ATS data, as well as differences in sampling design.
- **Respondents from Oklahoma clearly differ from those in New York or Massachusetts in almost all respects**. Their trips are shorter, more for family / personal business, and mostly made by auto. Oklahoma families tend to be middle-class and comprised of 4-persons.
- Respondents from New York and Massachusetts are very similar in demographic and travel factors.
- **Trip purpose** remained fairly consistent across the states, particularly concerning work travel. Oklahomans tend to make more trips for personal or family business, while Massachusetts respondents make more trips for vacation activities.
- The dominant **travel mode** was the personal auto. However, a higher proportion of New Yorkers consider long distance travel by bus to be a more viable option that respondents in other states.
- Most long distance travelers had **household sizes** of 2 to 4 persons. Households in Oklahoma tended to be larger than those in New York or Massachusetts, particularly in the NPTS data set.
- Most long distance travelers were white, non-Hispanic. Massachusetts had more Asian travelers, while New York had more Hispanic travelers.